

Work Order ID 55905

February 4, 2010 10:27:31 AM

Page 1

Item ID: D2741

Revision ID:

Item Name: Blade, 350 Skidtube

Start Date: 2/04/10 Start Qty: 40.00

Required Date: 2/16/10 Req'd Qty: 40.00

Reference:

Approvals:

Process Plan:

QC:

Date:

Date:

Tooling:

SPC (Y/N):

Date:

Date:

Run Start

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D2741

Rev C

100

0.00



BAND SAW

Bandsaw

Memo

0.00

Jeaspa Bandsaw

Cut blanks 13.850" long +0.063" -0.000"

B.A 10/02/28

110

0.00



HAAS CNC VERTICAL MACHINING #1

HAAS 1

Memo

0.00

HAAS CNC vertical machine #1

1-Machine per folio FA108

B.A 10/02/28

120

0.00



QC2- Inspect parts off machine FAI/FAIB

QC

Memo

0.00

Quality Control

B.A 10/02/28
10.3.3

32

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
10.2.7		 BLADE IS .005" UNDER TOL. AT ONE END. [THICKNESS] BLADE UNDER TOL FOR APPROX. 1.250" [THICKNESS] 		 N/A 10.03.05 PART OK 	 10.3.7 			

NOTE: Date & initial all entries

Work Order ID 55905

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Run Start

Approvals:

Process Plan:

Date:

Tooling:

Date:

Stop

QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

QC8- Inspect parts - second check

0.00

QC

Memo

0.00

Quality Control

Jim 10.03.05

32

140

Small Fab

0.00

Small Fab

Memo

0.00

Small Fab

1-Debur 12-Bend per Dwg D2741

EP 10/03/09 *(32)*

150

QC5- Inspect part completeness to step on W/O

0.00

QC

Memo

0.00

Quality Control

S 10/03/09

counted
(32)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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NOTE: Date & initial all entries

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Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

160

Outsource process - Heat Treat

0.00



Outsource1

Memo

0.00

Outsource process - Heat Treat

Issue P/O: 11493 □ Harden material as per Dwg D2741 □ Min. Ultimate Tensile Strength = 152 ksi (34-40 HRC) □ Min. Yield Tensile Strength = 141 ksi □ Test report or Certification required

CY 10/3/11 32

170

Receive & Inspect for Damage & Mat'l Certs

0.00



Packaging

Memo

0.00

Packaging

Ensure Test report or Certification attached

PB 14/3/08 (32)

180

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

8 10/03/09

counter
(32)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Customer:

Reference:

Run Start

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

190

0.00



Small Fab

Small Fab

Memo

0.00

Small Fab

1-Pass in deburring machine 2-Grind off edges

200

0.00



Powdercoat

Powder Coating

8 * clean w/ oil before powdercoating => M 10/03/31

X32

White Gloss(Ref:4.3.5.2) per QSI005 4.3-Steel

M113170

Memo

0.00

START TIME:

2:00pm

OVEN TEMPERATURE:

400°F FINISH TIME:

2:30pm

=> M 10/03/31

X32

P/b =>

210

0.00



QC

Quality Control

QC3- Inspect Part Finish

Memo

0.00

BR 10-4-6

32

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D2741 PAR #: _____ Fault Category: Finishing NCR: Yes No DQA: _____ Date: 10/04/01
 Resolution: re-work Disposition: re-work QA: N/C Closed: Yes Date: 10/04/12

NCR: <u>55905</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
10/4/1	200	After Powder coat there were markings that came through the powder coat P.C. were not cleaned enough	<i>[Signature]</i>	→ Remove all P/C ✓ → Re clean with Acetone ✓ → Re Powder coat AS per QSR	<i>[Signature]</i> 10-04-06	<i>[Signature]</i> 10/04/06	<i>[Signature]</i>	<i>[Signature]</i> 10/04/01
10/4/1	200	After Powder coat there were markings that came through the powder coat P.C. were not cleaned enough	<i>[Signature]</i>	Start time 2:00pm temp 400°F Fin time 2:30pm	<i>[Signature]</i> 10-04-06	<i>[Signature]</i> 10/04/06	<i>[Signature]</i>	<i>[Signature]</i> 10/04/01

NOTE: Date & initial all entries

Work Order ID 55905

February 4, 2010 10:27:32 AM



Item ID: D2741

Accept



Setup Start



Revision ID:

Stop



Item Name: Blade, 350 Skidtube

Start Date: 2/04/10 Start Qty: 40.00



Cust Item ID:

Required Date: 2/16/10 Req'd Qty: 40.00



Customer:

Reference:

Run Start



Approvals:

Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

220



Packaging

Memo

0.00

0.00

Packaging

10/04/12 (32)

230



QC

Quality Control

QC21- Final Inspection - Work Order Release

Memo

0.00

0.00

10/04/12
MF
10-4-9

Picklist Print

February 4, 2010 10:27:30 AM

Page 1

Work Order ID: 55905



Parent Item: D2741

Parent Item Name: Blade, 350 Skidtube

Start Date: 2/04/10

Required Date: 2/16/10

Comments: IPP Rev: D 00.11.15 Removed P/O turning - in house process IEC
 IPP Rev: E 06-03-20 As Per Rev C JLM
 IPP Rev: F 06.04.20 Added grinding after heat treating IEC

Start Qty: 40.00

Required Qty: 40.00

Component Item ID/	Replacement	Mfg/	Bin	Primary	Last	Route	Unit of	Qty on	Remaining	Qty	Date	Status
M4130NB0.500X03.00						100	f	31.5400	48.5937			



4130 Bar 0.500 x 3.00



Warehouse	Loc Qty	Loc Code
<u>Location</u>		
Main Warehouse		
MAT	31.54	
107935	10	
110336	21.54	
106274		

~~6.9250~~ ft
~~23.0833~~ ft
~~6.9250~~ ft

L.A 10/02/28

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

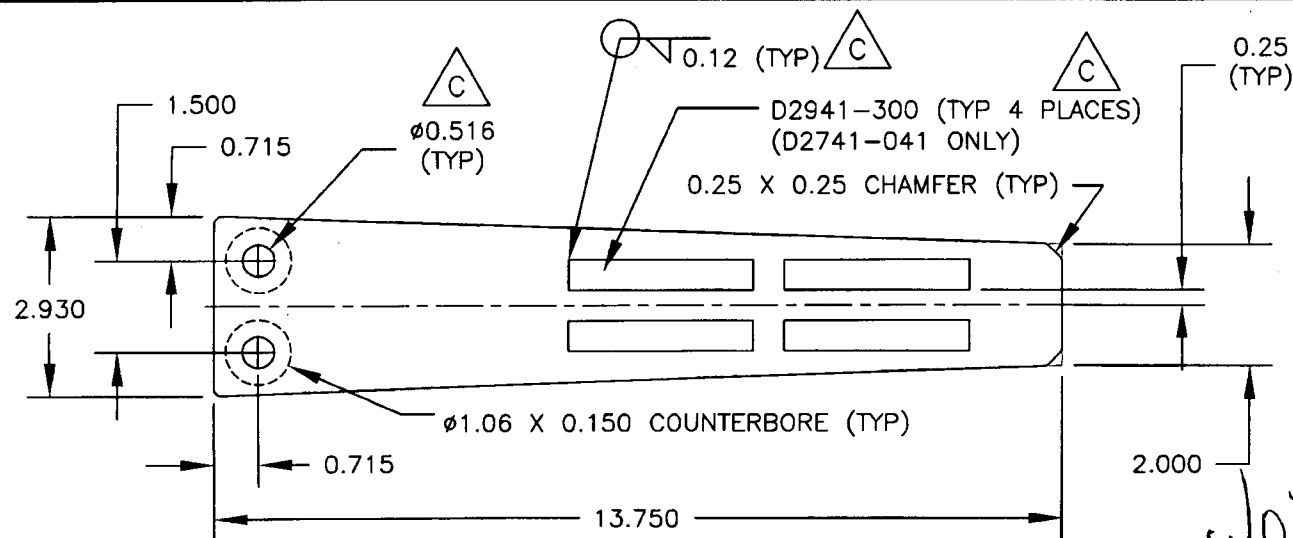
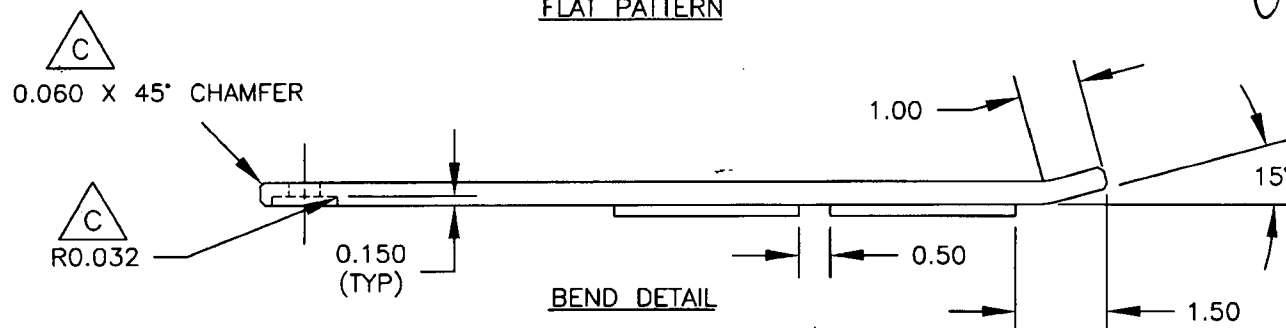
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART**RELEASED**
06 02 07 71

06055905

**FLAT PATTERN****BEND DETAIL****D2741 BLADE**

- 1) MATERIAL: AISI 4130 STEEL 0.375 THICK
MIN. ULTIMATE TENSILE STRENGTH = 152 ksi (34-40 HRC)
MIN. YIELD TENSILE STRENGTH = 141 ksi
- 2) FINISH: POWDER COAT WHITE (REF. 4.3.5.2) PER DART QSI 005 4.3
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) BREAK ALL SHARP EDGES 0.030 TO 0.060
- 6) TO MAKE D2741-041, WELD D2941-300 (4) AS SHOWN ABOVE.
REMOVE POWDER COAT FROM SURFACE OF D2941-300
- 7) TO MAKE D2741-043, WELD 7560 HARDCOAT ROD INSTEAD OF D2941-300

DESIGN	DRAWN BY	DART AEROSPACE USA, INC.
04	04	PORT HADLOCK, WA
CHECKED	APPROVED	DRAWING NO.
04	04	D2741
DATE	TITLE	REV. C
06.01.12	BLADE	SHEET 1 OF 1
A	98.04.16	NEW ISSUE
B	98.09.01	CHANGE C'SINK TO C'BORE
C	06.01.12	LARGER HOLE, ADD RADIUS AND CHAMFER ADD -041/-043 OPTIONS



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO11493

Purchase Order Date 3/11/10

PO Print Date 3/11/10

Page Number 1 of 1

Order From :

VC-MET004

FAXED
6/10/3/10

METCOR INC.
560 BOUL. ARTHUR SAUVE
SAINT-EUSTACHE, QC J7R 5A8
CA

Contact Name		Buyer	Chantal Lavoie
Vendor Phone	450 473 1884	Requisition Nbr	
Vendor Fax	450 491 5498	Tax Resale Nbr	10127-2607
Vendor Account Nbr		Terms	Net 30
		Currency	CAD
		FOB	

Ship To : DART AEROSPACE LTD 1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	55905	D2741 BLADE	3/18/10 Yes	32.00	Purolator ground	\$6.2500	\$200.0

Special Inst: HARDEN MATERIAL AS PER DWG
D2741
MINIMUM ULTIMATE TENSILE
STRENGTH = 152 KSI
(34-40 HRC)
MINIMUM YIELD TENSILE STRENGTH
= 141 KSI

PO Total: \$200.0

CERTIFICATE OF CONFORMITY
REQ'D UPON DELIVERY

Change Nbr: 1

Change Date: 3/11/10

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Recu de Livraison

Order	Shipper	Shipping Seq.
155892	1	40060

Shipped Complete

Customer **215**
DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

Shipped To:
DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

Purchase Order Number	Customer Shipper No.	Material Type	Order Date	Carrier
PO11493		4130	2010/3/12	FEDEX

Quantity	Part No. / Part Name / Part Description	Pounds
32	D2741 BLADE B55905 1 PAL = 2 BB	111,

Container Type	# Of Containers	Container Comments
	1	1 PAL=2 B.B

CERTIFICAT REQUIS

PACKING	
----------------	--

Quantity Shipped: 32
Pounds Shipped: 111,00
Quantity Remaining: 0
Pounds Remaining: 0,00

CERTIFICAT REQUIS

Quantity Shipped: 32

Pounds Shipped: 111,00

Signature:

Date:

Shipped ON: 2010/03/23

[illegible]

07 SEP 1967

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

Certification

Order	Load
155892	1

Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

Shipped To:

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

1

Customer PO / PO du Client	Customer Shipper No.	Material Type / Material	Mat'l Heat Code	Lot Number
PO11493		4130		

PROCESSING SPECIFICATIONS

SEL HARDEN

HARDEN AND TEMPER

SAE AMS 2759/1 REV.D

Requirement	Specified	Tests Performed	Test Results
HARDNESS	34 - 40 HRC	32	37 - 39 HRC
TENSILE (KSI)	152 - 182 KSI		166 - 177 KSI

Quantity	Weight	Part Number / Part Description
32	111	D2741 BLADE B55905 1 PAL = 2 BB

S. 10/12/25

Operation	Specified Temp	Specified Soak Time	Atmosphere	Carbon Potential	Q-Media Q-Temp	Furnace# Load #	Start Date	Time In	Time Out	Date Complete
1.00 LAVAGE			si nécessaire							
2.00 COMPTAGE PREPARINC										
3.00 PREHEAT 1	1000	1:00 1:30	air			133	03-16-10	00:20	1:40	03-16-10
4.00 SEL HARDE	1575	0:40	SEL		BRINE	106	03-16-10	1:40	2:25	03-16-10
5.00 WASH	150	0:30	soap			150	03-16-10	2:45	3:40	03-16-10
6.00 SNAP TEMF	400	2:00	air			638	03-16-10	3:40	6:00	03-16-10
7.00 DIST INSP										
8.00 SANDBLAS			Sablage							

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

Certification

Order	Load
155892	1

Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

Shipped To:

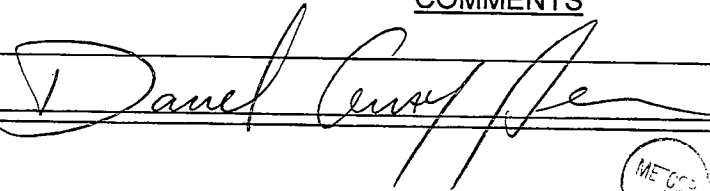
DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

Operation	Specified Temp	Specified Soak Time	Atmosphere	Carbon Potential	Q-Media Q-Temp	Furnace# Load #	Start Date	Time In	Time Out	Date Complete
9.00 TEMPER	875 +/-10°F	4 hrs	air			612	03-21-10	15:45	22:50	03-21-10
10.00 HARDN INS										
11.00 SANDBLAS			Sablage							
12.00 HUILAGE			huile							
13.00 FINAL INSP										03-23-10

COMMENTS

APPROVED BY:



DATE: 2010-03-23



We certify that all the information on this report is exact and in accordance with the order requirements. / Nous certifions que toute l'information comprise sur ce rapport est exacte et conforme aux requis du client.